

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-11. (Canceled)

12. (New) Method to adaptively control the phy mode of the transmissions from a peripheral station to a master station in either a point-to-multipoint or point-to-point transmission system with automatic transmit power control, called ATPC, and comprising the steps of:

receiving, at the peripheral station, power control signalling messages from the master station and regulating the transmitted power;

receiving, at the peripheral station, phy mode switching messages from the master station and changing the phy mode of the transmission;

transmitting said power control signalling messages from the master station to keep the received power inside the ATPC range;

transmitting a phy mode switching message from the master station in case the received power level reaches either a lower or a higher switching threshold associated with each phy mode used by the peripheral station for its transmissions, in order to command switching from a less robust and more efficient phy mode to a more robust and less efficient phy mode, or vice versa, in a way to establish a hysteresis cycle between said switching

thresholds;

transmitting said power control signalling messages from the master station in order to keep the received mean power substantially close to a reference received power level or working point predefined for each phy mode;

checking if the peripheral station has sufficient available transmission power in order to guarantee the transmission using said less robust phy mode with such a power level that allows the master station to receive the transmitted signal above the working point of said less robust phy mode; and

transmitting in case the check is affirmative a phy mode switching message towards a less robust and more efficient phy mode.

13. **(New)** The method of claim 12, wherein said working point of each phy mode is set by adding a margin, constant and independent from the phy mode, to the threshold level of the corresponding phy mode.

14. **(New)** The method of claim 12, wherein said working point, dependent on the phy mode, is set by equalizing the performances in terms of bit error rate of each phy mode to a constant value, said constant value being independent on the used phy mode and being coincident with the required performance.

15. **(New)** The method of claim 12, wherein said working point, dependent on the phy mode, is set by equalizing the decision distances of several phy modes.

16. **(New)** The method of claim 12, wherein said switching levels overlap the working points of the phy modes toward which the switching applies.

17. **(New)** The method of claim 12, wherein said checking if the peripheral station has sufficient available power is performed by the master station by reading its own memory where the information is stored.

18. **(New)** The method according to claim 12 wherein checking if the peripheral station has sufficient available power is performed by the master station upon the reception of this information from the peripheral station.